REMARKS

The examiner objected to the drawings under 37 CFR 1.83(a).

The examiner objected to the amendments to the specification under 35 U.S.C. 132(a) alleging that it introduced new matter not supported by the original disclosure.

The application includes claims 1, 4, 6-19, and 22-24 prior to entering this amendment.

The examiner objected to claims 1 and 13 for informalities.

The examiner rejected claims 6, 8, 16, and 24 under 35 U.S.C. § 112, first paragraph, alleging that it failed to comply with the written description requirement.

The examiner rejected claims 13 and 17-18 under 35 U.S.C. § 102(e) over Bullock et al. (U.S. Patent 5,351,186).

The examiner rejected claims 1, 4, 9, 12 and 15 under 35 U.S.C. § 103(a) over Bullock in view of Ohnishi (U.S. Patent 5,682,431).

The examiner rejected claims 14, 19 and 22 under 35 U.S.C. § 103(a) over Bullock in view of Lee (U.S. Patent 6,374,177).

The examiner rejected claim 16 under 35 U.S.C. § 103(a) over Bullock in view of Ishii (U.S. Patent Application Publication 2002/0132612).

The examiner rejected claims 6-8 under 35 U.S.C. § 103(a) over Bullock, Ohnishi, and Ishii.

The examiner rejected claims 10-11 under 35 U.S.C. § 103(a) over Bullock, Ohnishi, and Lee.

The examiner rejected claim 23 under 35 U.S.C. § 103(a) over Bullock, Lee, and Ohnishi.

The examiner rejected claim 24 under 35 U.S.C. § 103(a) over Bullock, Lee, Ohnishi, and Ishii.

The applicant amends claims 1, 16, and 24.

The application remains with claims 1, 4, 6-19, and 22-24 after entering this amendment.

The applicant does not add new matter and requests reconsideration.

Drawing Objections

The applicants replace figures 1-6 with the replacement, formal, drawing figures 1-6 (4 sheets).

Specification Objections

The examiner objects to the specification alleging that the amendment filed 8/15/2007 introduced new matter.

The applicant traverses the examiner's specification objections for the reasons that follow.

The examiner acknowledged that claim 6, as originally filed, recited *the signal combiner time-division multiplexes the FM data signal and the FM encoded audio signal to generate the composite FM signal.*[1] Claim 8, as originally filed, recited *the signal combiner is multiplexing circuitry in the processor that time-division multiplexes the digital FM encoded audio signal and the FM data signal to generate the composite FM signal.* The originally-filed claims are part of the specification as originally-filed.[2]

Notwithstanding, the examiner alleged that the applicant added new matter to the specification in the amendment filed 8/15/2007. The applicant notes that it is unclear if the examiner is referring to new claims 16 and 24 added at the amendment 8/15/2007 or both the amendments made to existing claims 6 and 8 in the amendment filed 12/17/2007 and new claims 16 and 24 added at the amendment filed 8/15/2007 since the language identified by the examiner appears not just in new claims 16 and 24 but in claims 6, 8, 16, and 24. The applicant assumes the later to be the case.

Claim 6 recites wherein *the processor is configured to time-division multiplex the digitally encoded speech and the audio signal to generate the FM digital signal.* Claim 8 recites *the processor comprises multiplexing circuitry to time-division multiplex the digital audio signal and the digitally encoded speech to generate the FM digital signal.* As originally filed, claim 8 provided *the signal combiner is multiplexing circuitry in the processor.* It follows that the signal combiner and its multiplexing circuitry is *in* the processor (or is included in the processor). As such, the specification fully supports amended claim 6's recitation of *the processor*, which includes the previously recited signal combiner and it multiplexing circuitry, being *configured to time-division multiplex the digitally encoded speech and the audio signal to generate the FM*

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[1] Office action dated 3/20/2008, page 3.
[2] See *In re Koller*, 613 F.2d 819, 204 U.S.P.Q. 702 (CCPA 1980) (original claims constitute their own description); accord *In re Gardner*, 475 F.2d 1389, 177 U.S.P.Q. 396 (CCPA 1973); accord *In re Wertheim*, 541 F.2d 257, 191 U.S.P.Q. 90 (CCPA 1976).

digital signal. Likewise, the specification fully supports amended claim 8's recitation of *the processor* comprising *multiplexing circuitry to time-division multiplex the digital audio signal and the digitally encoded speech to generate the FM digital signal.* Claim 16 now recites *wherein the processor includes a signal combiner configured to time-division multiplex the digitally encoded speech and the audio signal to generate the combined FM digital audio signal.* Claim 24 now recites *wherein the processor includes a signal combiner configured to time-division multiplex the digitally encoded speech and the audio signal to generate to combined digital audio signal.* The applicant asks the examiner to reconsider the rejection of the specification as including new matter.

Claim Rejections Under § 112

The examiner further rejects claims 6, 8, 16, and 24 as failing to comply with the written description requirement.

The applicant traverses the examiner's rejection for the reasons that follow.

The examiner alleged that the claims recite subject matter that is not described in the specification in such a way as to reasonably convey to one skilled in the art that the inventors had possession of the invention at the time of filing.

The specification provides that "the digital data, a PCM digital audio signal and a 57 KHz oscillator signal generated, for example, by a crystal controlled oscillator (not shown), are applied to the processor 312. With the memory 314, the processor 312 forms the software based stereo coder and RDS modulator 310. The processor 312 implements the functions of the FM stereo encoder as well as the functions of the RDS modulator. An exemplary FM stereo encoder that may be implemented in a DSP or RISC environment is disclosed in U.S. patent no. 5,682,431 entitled FM STEREO BROADCASTING APPARATUS AND METHOD which is incorporated herein by reference for its teaching on FM stereo coding and modulation. The output signal of the stereo coder and RDS modulator 310 is applied to the D/A converter and filter 320. The D/A and filter 320 band-pass filters the analog output signal of the stereo coder and modulator 310 to remove artifacts related to the sampling frequency to generate an output signal corresponding to a baseband FM stereo signal with RDS data."[3] Note that the '431 patent incorporated by reference is the Onishi reference the examiner used to reject the claims as

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[3] Specification, paragraph [0035]. See also paragraphs [0036]-[0037].

obvious in combination with Bullock and other references. Moreover, time-division multiplexing was well known in the art at the time the present application was filed. Note that the Ishii reference used by the examiner to reject the claims evidences the state of the art in 2000, the year the Ishii application was foreign filed in Japan. No less than 14,766 patents issued before 1/1/2000 disclose time division multiplexing. Many textbooks existed at the time the application was filed that disclosed time division multiplexing. The applicant asks the examiner to reconsider the rejection of claims 6, 8, 16, and 24 for failing to comply with the written description requirement given the incorporation of Onishi and the extensive and well-documented description of time division multiplexing known to those of skill in the art. The applicant is willing to provide such documentation if the examiner deems it necessary.

Claim Objections

The examiner objects to claims 1 and 13 for informalities.

The examiner remains steadfast in the requirement that the "a" form of the indefinite article be used before the acronym FM. The applicant disagrees given the grammatical rules surrounding the use of the indefinite article. According to *The Oxford Dictionary of American Usage and Style*, the indefinite article "a" is used before words beginning with a consonant sound, including /y/ and /w/ sounds. The other form, "an," is used before words beginning with a vowel sound including initialisms. Hence, an *FBI agent*, an *MBA degree*, an *SEC filing*.[4] That is, the indefinite article "an" is used before an initialism beginning with a vowel sound when read, as in *an FBI* (where the acronym FBI begins with the vowel sound ef), *an MBA* (where the acronym MBA begins with the vowel sound em), *an SEC* (where the acronym SEC begins with the vowel sound es), and the like. The applicant asks the examiner to reconsider the rejection or cite a grammatical usage authority to support the rejection.

Claim Rejections Under § 102

The examiner rejected claims 13 and 17-18 under § 102(e) over Bullock.

The applicant traverses the rejections for the reasons that follow.

The applicant notes that the examiner has rejected claims 13 and 17-18 under both §§ 102(e) and 102(b) where the rejection is more properly solely under § 102(b).

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[4] The Oxford Dictionary of American Usage and Style 2000, originally published by Oxford University Press 2000.

Claim 13 recites *a radio data system (RDS) modulator configured to generate a modulated text data signal in response to a broadcast audio transmission including text data and an audio signal, the text data being descriptive of the audio signal.* The examiner alleged that Bullock disclosed the recited RDS modulator when it disclosed a speech processor 76 in a user unit 18.[5] In Bullock, the speech processor 76 receives the encoded audio data output from the microprocessor 68 and converts it to an audio speech form.[6] "The processor 76 outputs the converted data into a speaker 78 for broadcasting the converted data into an audible form understandable by the user."[7] It appear that the examiner identified the recited *broadcast audio transmission including text data and an audio signal* as Bullock's transmitted signal from the transmitter 38 in the first computer 12 to the receiver 64 in the user unit 18.

It does not appear, therefore, that Bullock's speech processor 76 generates a modulated signal at all, much less a *modulated text data signal* where the text data signal is included in the broadcast audio transmission as recited by the claim.

Moreover, the microprocessor 68 receives encoded audio data transmitted from the first computer 12. The first computer 12, in turn, receives the encoded audio data from the speech encoder 25.[8] Note that claim 13 recites *the text data being descriptive of the audio signal.* In Bullock, although the encoded audio data transmitted by the first computer 12 may be speech data alone or a combination of speech data and non-speech data such as pricing, the pricing is not descriptive of the speech data as is required by the claims. The specification supports the claim language at various portions.[9]

Claim 13 further recites *a frequency modulation (FM) encoder configured to generate an FM encoded audio signal in response to the audio signal, a signal combiner configured to combine the modulated text data signal and the FM encoded audio signal into a combined signal,* and *an FM transmitter configured to transmit the combined signal.* The examiner broadly alleged that Bullock disclosed the recited encoder, signal combiner, and transmitter with various components associated with the first computer 12. In particular and as best understood by the applicant, it appears the examiner alleged that Bullock's encoder 36 disclosed the recited *frequency modulation (FM) encoder* and transmitter 38 disclosed the recited *FM transmitter.* It

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[5] Office action dated 3/20/2008, page 6.
[6] Bullock, column 7, lines 6-12.
[7] Bullock, column 7, lines 9-12.
[8] Bullock, column 5, lines 6-9.

is not clear to the applicant what element in Bullock the examiner deemed to disclose the recited *signal combiner*. The applicant's analysis assumes that the examiner meant to identify either the speech encoder 25, CPU 24, or their combination as disclosing the recited *signal combiner*.

Thus, the examiner finds the recited encoder, combiner, and transmitter disclosed in components that form part of the first computer 12 while finding the recited RDS modulator disclosed in components associated with the user unit 18. Notably, however, the claims' encoder operates in response to the audio signal that forms part of the broadcast audio transmission received by the RDS modulator. In Bullock, the encoder 36 encodes encoded speech data it receives from the CPU 24.[10] For Bullock to disclose the recite language, it would appear that the encoder 36 would necessarily encode the speech data transmitted from the transmitter 38 in the first computer 12 to the receiver 64 in the user unit 18. But Bullock does so operate.

Moreover, the examiner appears to have alleged that Bullock's speech encoder 25, CPU 24, or their combination is configured to combine the output of the processor 76 in the user unit 18 with the output of encoder 36 in the first computer 12. But Bullock's processor 76 does no such combining. Finally, the examiner appears to have alleged that Bullocks' transmitter 38 transmits the combination of two separately modulated and then combined signals, but it does not. The transmitter 38 merely transmits the output of encoder 36, which, in turn, encodes the output of CPU 24. The output of the CPU 24 does not combine two separately modulated signals included in a broadcast audio transmission.

For these reasons, independent claim 13 and dependent claims 14-18 are patentable over Bullock.

Claim Rejections Under § 103

The examiner rejected claims 1, 4, 6-12, 14-16, 19, and 22-24, under § 103(a) over various combinations of Bullock in view of Ohnishi, Lee, and Ishii.

The applicant traverses the rejections for the reasons that follow.

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[9] See, e.g., paragraphs [0004], [0005], [0021], [0022], [0023], [0024], [0025], [0026], [0037], and others.
[10] Bullock, figure 2.

Claim 1 recites *a processor configured to receive text data descriptive of an audio signal, to convert the text data into digitally encoded speech, and to encode the audio signal and the digitally encoded speech according to an FM standard into an FM digital signal.* Claim 19 recites *a processor configured to receive an audio signal and text data descriptive of the audio signal from the storage device, to generate a modulated text data signal from the text data, to encode the audio signal into an FM encoded audio signal, to combine the modulated text data and the FM encoded audio signal into a combined audio signal, and to convert the combined audio signal into an FM signal.*

The examiner alleged that Bullock disclosed the recited language when it disclosed a processor in figures 2-4.[11] It is unclear if the examiner referred to the CPU 24 in the first computer 12 or the microprocessor 68 in user unit 18. The applicant analyzes both instances for completeness.

The CPU 24 receives encoded speech from the speech encoder 25 that, in turn, receives audio input signals directly received by the microphone (not shown).[12] The speech encoder 25 "receives the electrical audio signals and digitizes and encodes the received signals."[13] The "processor 26 [sic]...readies that data from transmission to the on-site computer 16 [sic]....The first computer 12 may transmit encoded audio or speech data received from the speech encoder 25, either alone or in a data module, in combination with non-speech data such as pricing data."[14] The microprocessor 68, for its part, provides the transmitted data received by the receiver 64 to the speech processor 76. The speech processor 76, in turn, converts the input into an audio speech form.[15]

The claim, however, recites *a processor...to receive text data descriptive of an audio signal.* In Bullock, the exemplary non-speech data is pricing that is not *descriptive of* the audio data but rather associated with the product or service.

The claim recites *a processor... to convert the text data into digitally encoded speech.* In Bullock, the CPU 24 does not appear *convert* the pricing *into digitally encoded speech.* The microprocessor 68 in the user unit 18 may receive transmitted speech and pricing data received by the receiver 64 but it also does not *convert* the pricing *into digitally encoded speech.*

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[11] Office action dated 3/20/2008, page 7.
[12] Bullock, column 4, lines 42-47.
[13] Bullock, column 4, lines 52-55.
[14] Bullock, column 5, lines 4-10.

The claim recites *a processor... to encode the audio signal and the digitally encoded speech according to an FM standard into an FM digital signal.* In Bullock, the CPU 24 receives encoded speech from the speech encoder 25 but does not itself encode the audio signal and the digitally encoded speech according to an FM standard to generate an FM digital signal. [16,17] The encoder 36 and the transmitter 38 appear to both encode and transmit the signal output from the CPU 24. Bullock does not describe the particulars associated with the encoder 36 or the transmitter 38. The microprocessor 68 provides the transmitted data received by the receiver 64 to the speech processor 76 that, in turn, converts the input into an audio speech form. [18] The microprocessor 68, therefore, does not encode any signal, much less the specific type of signal recited in the claims.

For these reasons, independent claims 1 and 19 and corresponding dependent claims 4-12 and 22-24 are patentable over Bullock.
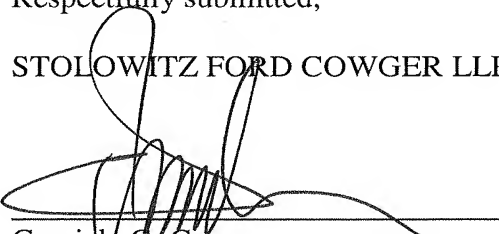
Conclusion

In view of the foregoing, the applicant respectfully submits that claims 1, 4, 6-19, and 22-24 are allowable and asks that this application be passed to allowance. The applicant encourages the examiner to telephone if a conference would advance prosecution.

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Respectfully submitted,

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[15] Bullock, column 7, lines 6-10.
[16] Bullock, column 4, lines 52-55.
[17] Bullock, column 5, lines 4-10.
[18] Bullock, column 7, lines 6-10.